

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A composite polymer electrolyte composition comprising a product produced by polymerizing *in situ* a monomer composition comprising (a) molten salt monomer having a polymerizable functional group and a quaternary ammonium salt structure consisting of a quaternary ammonium cation and a fluorine-containing anion, and (b) charge transfer ion source comprising a lithium salt of a lithium ion and a fluorine-containing anion,

in the presence of an electrochemically inert polymer reinforcing ~~material selected material~~ selected from the group consisting of polyvinylidene fluoride and a copolymer thereof.

2. (Currently Amended) The composite polymer electrolyte composition of claim 1 wherein said monomer composition further ~~comprising comprising~~ a polyfunctional monomer copolymerizable with said molten salt monomer.

3. (Original) The composition of claim 1 wherein said quaternary ammonium cation is selected from the group consisting of 1-vinyl-3- alkylimidazolium cation, 4-vinyl-1-alkylpyridinium cation, 1-alkyl-3-allylimidazolium cation, 1-(4-vinylbenzyl-3-alkylimidazolium cation, 1-(vinyloxyethyl)-3-alkylimidazolium cation, N-vinylimidazolium cation, 1-allylimidazolium cation, N-allylbenzimidazolium cation and quaternary diallyldialkylammonium cation, and wherein said fluorine-containing anion is selected from the group consisting of bis[(trifluoromethyl)sulfonyl]imide anion, 2,2,2-trifluoro-N-(trifluoromethylsulfonyl) acetamide anion, bis[(pentafluoroethyl)sulfonyl]imide anion, bis(fluorosulfonyl)imide anion, tetrafluoroborate anion and trifluoromethanesulfonate anion.

4. (Canceled) .

5. (Original) The composite polymer electrolyte composition of claim 1 wherein said polymer

reinforcing material is polyvinylidene fluoride or a modified polyvinylidene fluoride containing a plurality of carbon-to-carbon double bonds.

6. (Canceled).

7. (Original) The composite polymer electrolyte composition of claim 1 wherein said polymer reinforcing material is a porous sheet or film containing a large number of continuous pores, and wherein the polymer of said molten salt monomer forms a continuous phase through said pores.

8. (Original) The composite polymer electrolyte composition of claim 1 wherein said monomer composition is polymerized by heat.

9. (Original) The composite polymer electrolyte composition of claim 1 wherein said monomer composition is polymerized by irradiating with UV radiation.

10. (Original) The composite polymer electrolyte composition of claim 1 wherein said monomer composition is polymerized by irradiating with electron beam.

11. (Canceled)

12. (Previously Presented) A composite polymer electrolyte composition of claim 1 wherein said charge transfer ion source is selected from the group consisting of LiBF₄, LiPF₆, C_nF_{2n+1}CO₂Li, C_nF_{2n+1}SO₃Li, (FSO₂)₂NLi, (CF₃SO₂)₂NLi, (C₂F₅SO₂)₂NLi, (CF₃SO₃)₃CLi, (CF₃SO₂-N-COCF₃)Li and (RSO₂-N-SO₂CF₃)Li, wherein n is an integer of 1-4 and R is an alkyl or aryl group.

13. (Original) A lithium ion battery comprising the composite polymer electrolyte composition of claim 12 sandwiched between an anode and a cathode.

14-18. (Canceled)

19. (Previously Presented) A composite polymer electrolyte composition comprising a polymer blend of (a) a polymerization product of a monomer having a polymerizable functional group and a quaternary ammonium salt structure consisting of a quaternary ammonium cation and a fluorine-containing anion, and (b) an electrochemically inert polymer selected from the group consisting of polyvinylidene fluoride and a copolymer thereof, said composite polymer electrolyte composition further comprising a charge transfer ion source comprising a lithium salt of a lithium ion and a fluorine-containing anion.

20. (Previously Presented) The composite polymer electrolyte composition of claim 19 wherein said ammonium cation is selected from the group consisting of 1-vinyl-3-alkylimidazorium cation, 4-vinyl-1-alkylpyridinium cation, 1-alkyl-3-allylimidazolium cation, 1-(4-vinylbenzyl)-3-alkylimidazorium cation, 1-(vinyloxyethyl)-3-alkylimidazorium cation, 1-vinylimidazorium cation, 1-allylimidazorium cation, N-allylbenzimidazolium cation and quaternary diallyldialkyl ammonium cation, and wherein said fluorine-containing anion is selected from the group consisting of bis[(trifluoromethyl) sulfonylimide anion, 2,2,2-trifluoro-N-(trifluoromethylsulfonyl) acetamide anion, bis[{pentafluoroethyl}sulfonyl]imide anion, bis(fluorosulfonyl)imide anion, tetrafluoroborate anion and trifluoromethanesulfonate anion.

21. (Previously Presented) The composite polymer electrolyte composition of claim 19 wherein said charge transfer ion source is selected from the group consisting of LiBF₄, LiBF₆, C_nF_{2n+1}Li, C_nF_{2n+1}SO₃Li, (FSO₂)₂Nli, (CF₃SO₂)₂Nli, (C₂F₃SO₂)₂Nli, (CF₃SO₂)Cli, (CF₃-SO₂-N-COCF₃)Li and (R-SO₂-N-SO₂CF₃)Li, wherein n is an integer of 1-4 and R is an alkyl.

22. (Previously Presented) A lithium ion battery comprising the composite polymer electrolyte composition of claim 21 sandwiched between an anode and a cathode.